IN THE SPECIFICATION:

Please replace the paragraph beginning on page 1, lines 5-13, with the following amended paragraph:

This application is a continuation-in-part of U.S. Patent Application Serial No. 09/466,990, entitled "STREAM INDEXING FOR DELIVERY OF INTERACTIVE PROGRAM GUIDE," filed December 10, 1999 (now U.S. Patent 6,614,843), which is a continuation-in-part of Serial No. 09/293,535, entitled "IMPROVED DATA STRUCTURE AND METHODS FOR PROVIDING AN INTERACTIVE PROGRAM GUIDE", filed April 15, 1999 (now U.S. Patent 6,584, 153), Serial No. 09/384,394, entitled "METHOD AND APPARATUS FOR COMPRESSING VIDEO SEQUENCES," filed August 27, 1999, (now U.S. Patent 6,621,870), and Serial No. 09/428,066 filed October 27, 1999 (now U.S. Patent 6,651,252) entitled "METHOD AND APPARATUS FOR TRANSMITTING VIDEO AND GRAPHICS IN A COMPRESSED FORM."

Please replace the paragraph beginning on page 1, lines 20-23, with the following amended paragraph:

The above-identified related applications are all assigned to the assignee of the present invention and incorporated herein by reference in their entirety for all purposes. Application Serial No. 09/466,990 (now U.S. Patent 6,614,843) is attached hereby as Exhibit A and Serial No. 09/539,228 is attached hereby as Exhibit B.

Please replace the paragraph beginning on page 3, lines 10-18, with the following amended paragraph:

The number of transport streams generated by each transport stream generator can be dynamically adjusted based on demands from the neighborhood being served by the transport stream generator. Each transport stream generator can be directed to generate an additional transport stream if usage exceeds the capacity of the currently transmitted transport streams. For example, additional transport stream can be generated if the number of (e.g., guide, video, audio, and data) streams to be transmitted or if the required number of PIDs exceeds the capacity provided by the

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currently transmitted transport streams. Correspondingly, a particular transport stream can be tear torn down if usage falls below the capacity of remaining transport streams.

Please replace the paragraph beginning on page 4, lines 14-19, with the following amended paragraph:

As shown in FIG. 1 of the attached Exhibit B Patent Application S/N 09/539,228, the head-end may service a number of distribution nodes directly or via local neighborhood equipment. Each distribution node may include a number of terminals (e.g., 4000 or more terminals). The programming (e.g., the IPG) provided to each distribution node may be different from that of other nodes. This differentiated programming can be achieved by transmitting one or more (distinct) transport streams to each distribution node.

Please replace the paragraph beginning on page 4, lines 20-29, with the following amended paragraph:

As shown in FIG. 8 of Exhibit B Patent Application S/N 09/539,228, a number of IPG pages can be continually broadcast to each distribution node (e.g., 40 pages in the example shown in FIG. 8 of Exhibit B Patent Application S/N 09/539,228). Other IPG pages can be sent to viewers within the distribution node as requested via demand-cast. The IPG pages can be coded using picture-based and/or slice-based encoding schemes in the manner described in the attached Exhibit A Patent 6,614,843 and the coded pages can be assigned PIDs. Depending on the particular encoding scheme used, a set of 10 IPG pages may utilize[d] 12 PIDs for the video and guide portions, another PID for the audio, and one or more PIDs for the data (as shown in FIG 10C of Exhibit A Patent 6,614,843). For demand-cast, each requested IPG page may be assigned with one or more PIDs for the demand-casted page.

Please replace the paragraph beginning on page 4, line 30 to page 5, line 5, with the following amended paragraph:

To service a large number of terminals in a particular distribution node, especially during periods of heavy activity (e.g., during prime time periods) a large number of PIDs

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may be required. In accordance with the MPEG-2 standard, only a particular number of PIDs can be supported by each transport stream, as shown in FIG. 29 of ~~Exhibit A~~ Patent 6,614,843. Also, depending on the demands, a large transmission capacity may be required to send the required contents (e.g., the requested IPG pages). In a system in which resources (i.e., bandwidth) is limited, viewer requests for IPG pages may not be serviced if the required bandwidth is not available, which then results in blockage as described in ~~Exhibit B~~ Patent Application S/N 09/539,228. Blockage degrades the quality of service and is highly undesirable in many circumstances.

Please replace the paragraph beginning on page 5, lines 6-17, with the following amended paragraph:

An aspect of the invention provides "multicasting" techniques that can be used to serve the time varying demands of a distribution node. Via multicasting, a number of transport streams can be generated and used to service a distribution node having, or during periods of, heavy demands. The multiple transport streams can provide additional transmission capacity (i.e., more bandwidth) and can also accommodate a larger number of PIDs. The larger number of PIDs is especially useful for demand-cast, during periods of heavy demands. The particular number of transport streams to be provided to the distribution node can be based on the actual needs of the node and, in accordance with an aspect of the invention, can be dynamically adjusted. Thus, additional transport streams can be sent to the distribution node as demands increase, with more transport streams being provided during periods of heavy demands. Correspondingly, transport streams can be ~~tear~~ torn down when the demands subside.

Please replace the paragraph beginning on page 5, lines 23-33, with the following amended paragraph:

In the embodiment shown in FIG 1A, head-end 102a includes a session manager 112, a bandwidth manager 114, a bank of encoding and packetizing units 120, and a number of transport stream generators 130 (e.g., one transport stream generator for each distribution node being served). Head-end 102a receives contents from content sources 150, which may include a Video-on-demand (VOD) source 152a, an interactive

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program guide source 152b, a programming ~~v4652c~~ 152c, an audio source 152d, a data source 152e, and other sources 152d for other types of content (e.g., advertisements, and so on). The contents are provided to the bank of encoding and packetizing units 120. Each encoding and packetizing unit 122 receives the designated contents (e.g., the guide and video portions for one or more IPG pages to be transmitted) and generates a number of streams, with each stream being assigned a respective PID.

Please replace the paragraph beginning on page 6, lines 1-9, with the following amended paragraph:

For example, to encode ten IPG pages such as that shown in FIG. 10C in ~~Exhibit A~~ Patent 6,614,843 encoding and packetizing unit 122 may receive ten video inputs for the ten IPG pages, one audio input, and one or more data inputs. Encoding and packetizing unit 122 encodes and packetizes the guide portion of each video input, the video portion of one of the video inputs, the audio input, and the data input(s). Encoding and packetizing unit 122 can then output ten guide streams, one video stream, one audio stream, and one or more data streams. Each guide, video, audio, and data stream is assigned a respective PID. Each IPG page can be encoded using a slice-based or picture-based encoding scheme, depending on the particular implementation of the encoding and packetizing unit.

Please replace the paragraph beginning on page 6, lines 10-18, with the following amended paragraph:

Each transport stream generator 130 receives the outputs from one or more encoding and packetizing units 122 and multiplexes the received streams to form one or more transport streams to be provided to the distribution node. The multiplexing of the guide, video, audio, and data streams can be performed as described in ~~Exhibit A~~ Patent 6,614,843. To form each transport stream, one packet of each of a number of video, audio, and data streams may be sequentially multiplexed into the transport stream. For example, a packet from each of guide streams 1 through 10 (e.g., for the ten IPG pages in FIG 10C in ~~Exhibit A~~ Patent 6,614,843), then a package from a video

stream, then a packet from an audio stream, then a packet from a data stream, and so on, can be multiplexed into the transport stream.

Please replace the paragraph beginning on page 6, line 31 to page 7, line 7 with the following amended paragraph:

Session manager 112 manages the operation of encoding and packetizing unit 122 and attempts to service the demands of terminals 108 in distribution nodes 106. For a particular demand-cast, session manager 112 receives a message from a terminal 108 requesting an IPG page (e.g., via a back-channel), determines whether the requested page is currently transmitted or available, and directs one of the encoding and packetizing units 122 to encode the requested IPG page and provide the resultant stream(s) to the transport stream generator serving the neighborhood where the requesting terminal resides. Depending on the particular scheme being implemented for the demand-cast (e.g., for a scheme that continually transmit the requested IPG page, as described in ~~Exhibit B~~ Patent Application S/N 09/539,228), session manager 112 may maintain track of the IPG page being demand-casted so that the page can later be ~~tear~~ torn down if not needed.

Please replace the paragraph beginning on page 8, lines 1-8, with the following amended paragraph:

Each encoding and packetizing unit 122 can be designed to encode the received contents based on a slice-based encoding scheme, as described in ~~Exhibit A~~ U.S. Patent 6,614,843, which can provide improved utilization of the available bandwidth. Alternatively or additionally, encoding and packetizing unit 122 can be designed to implement picture-level encoding. Slice and picture-based encoding schemes are described in ~~Exhibit A~~ U.S. Patent 6,614,843 and in U.S. Patent ~~Application Serial No. 09/384,394~~ 6,621,870, entitled "METHOD AND APPARATUS FOR COMPRESSING VIDEO SEQUENCES," ~~filed April 15, 1999,~~ assigned to the assignee of the invention, and incorporated herein by reference.

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Please replace the paragraph beginning on page 8, lines 9-18, with the following amended paragraph:

In FIG. 1A, the transport stream generators are shown as being located within the head-end and operated to provide the output streams required by the neighborhood being served by the transport stream generators. In some distribution system 100, local neighborhood equipment can be provided to receive one or more transport streams from the head-end, ~~extracts~~ extract the information (e.g., guide and video slices) in the received transport streams, and ~~combines~~ combine the extracted information in an order such that the decoder at the terminals can easily decode the IPG without further reorganization. Thus, local neighborhood equipment may include a unit equivalent to the transport stream generator, which is used to generate one or more transport streams required by the neighborhood being served by the local neighborhood equipment.

Please replace the paragraph beginning on page 8, lines 24-34, with the following amended paragraph:

In the embodiment shown in FIG 1B, head-end 102b includes session manager 112, bandwidth manager 114, and a bank of transport stream generators 124. Head-end 102b receives contents from content sources 150, with the contents being provided to the bank of transport stream generators 124. Each transport stream generator 126 can be implemented with one ore more encoding and packetizing units, such as the ones shown in FIG. 1A and described in ~~Exhibit A~~ U.S. Patent 6,614,843. Each transport stream generator 126 receives the appropriate contents (e.g., the IPG pages to be provided on its output transport stream) and generates one or more transport streams. Each transport stream generator 126 also combines the one or more generated transport streams to generate a respective output stream. The output stream is then provided to a distribution node 106 being serviced by that transport stream generator 126.

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Please replace the paragraph beginning on page 9, lines 14-25, with the following amended paragraph:

Various multiplexing structures and stream indexing schemes can be used to implement the multicast of the invention. The transport stream(s) to be provided to each distribution node can be organized to maximize the number of PID transitions within a transport stream, and to minimize the number of PID transitions between transport streams. Such transport stream organization would facilitate PID transitions and provide improved performance at the terminals because transitions within a transport stream are typically simpler and faster than transitions between transport streams. Some of these multiplexing structures and stream indexing schemes are described below and, for clarity, are described for a specific example in which 40 IPG pages are continually transmitted. These exemplary 40 IPG pages include guide listings for 200 channels in the current and near look-ahead time slots, and each set of ten IPG pages are encoded by their guide and video portions as shown in FIG. 10C in Exhibit A U.S. Patent 6,614,843.